Focal seizures due to mass lesions of Acquired Immuno Deficiency Syndrome.

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ABSTRACT

The neurological manifestations of Toxoplasmosis in patients of AIDS are very common. The most common clinical presentations are focal neurological deficits, seizures, headache, aphasia & meningitis. The diagnosis is suspected when a HIV positive patient comes with above clinical features with classical MRI brain (contrast) findings of multiple ring enhancing lesions showing eccentric target sign. We report a case of AIDS patient who presented with left hemiparesis & left focal seizures secondary to CNS toxoplasmosis mass lesions.

Introduction

Toxoplasmosis is caused by infection with obligate intracellular parasite Toxoplasm gondii. Cat is the definitive host & the oocysts are shed in cat's faces which infect variety of animals & human beings. Human Toxoplasmosis occurs secondary to ingestion of either sporulated oocysts from contaminated soil or bradyzoites from undercooked meat(1). The direct transmission of parasite by blood organ products during transplantation also occurs rarely. The dissemination to all the organs mainly lymphatic tissue, skeletal muscles, myocardium, placenta and CNS takes place after the parasite enters through GIT. Patients of AIDS or those on immuno suppressive treatment are at the greatest risk of developing toxoplasmosis(2). This predilection is due either to reactivation of latent infection or acquisition of parasite from blood or transplantation of organs. In AIDS patients more than 95% cases of CNS toxoplasmosis are believed to be due to recrudescent infections(3). In most of these cases infection develops when CD4 + T cell count falls below 100 / µL.The principal opportunistic infection of CNS in patients of AIDS is toxoplasmosis. The neurological problems that occur in these patients may be either primary to pathogenic process of HIV infections or secondary to opportunistic infections that involves CNS,like toxoplasmosis, cryptococcosis or progressive multifocal leucoencephalopathy and primary CNS lymphoma. Other less common problems include mycobacterial infections, syphilis and infection with CMV, HTLV 1 etc.(4)

Seizures in HIV+ve patients can be due to opportunistic infections, neoplasms or HIV encephalopathy. The seizure threshold in these patients is less than normal due to frequent presence of electrolyte imbalance.They are seen in 15-40% patients of cerebral toxoplasmosis, 15-30% cases of CNS lymphoma, 8% of cryptococcal meningitis. They may also occur less commonly due to CNS tuberculosis, aseptic meningitis and progressive MLE. Hypersensitivity reactions to Phenytoin have been reported in more than 10 % of patients with AIDS & therefore phenobarbitone or valproic acid should be used for management of seizures.

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Case Report

A 30 year old female patient Mrs. R. S, a house wife, came to the hospital with history of low grade fever & weakness on the left side of her body (upper & lower limb) since 2 months and 4 episodes of abnormal involuntary movements in left upper limb, since 2 days before admission.

Patient is a diagnosed case of ICH (AIDS) since 7 years. She was detected to be HIV positive during her first pregnancy. Patient was registered under ART clinic in Government Hospital 2 months back after her evaluation. She stopped taking ART on her own after 7 days of starting it as she developed vomiting & multiple mouth ulcers. She gives history of low grade fever, since 2 months. She also noticed weakness of left side of body since 1 ½ months in the form of difficulty in doing finer activities and inability to walk properly. She gives history of severe headache since two weeks associated with vomiting. Patient noticed abnormal invoulantary movements in left upper limb in form of focal motor seizures. Before the hospitalization she had four such episodes, each lasting for 2-3 minutes.. There is history of weight loss and anorexia since two months.

There was no H/o cough, dyspnoea, loose motions, loss of consciousness, DOV, Diplopia, any urinary or abdominal complaints.

Past History

No H/o HTN, DM, PTB, BA, Jaundice.

Personal History

No addiction, consumes mixed diet, Bowel & bladder habits are normal. Her menses are irregular and scanty.

Family History

Patient's husband was a truck driver previously and is also HIV positive since 7 years .They have a son, 6years old who was born by vaginal delivery after receiving Nevirapine in the hospital .

General Examination

A young female, emaciated, conscious, oriented with time, place & person, on admission was febrile (T =100°F) with pulse of 100/ minute, regular, RR= 22/ minute. Pallor was positive, ***Oral Thrush present along with few oral superficial ulcers.***

No icterus, cyanosis, clubbing, lymphadenopathy, oedema feet was seen .No neck stiffness was noted.

Systemic Examination:

CVS: S1 S2 Normal, no murmur.

RS: Normal.

P/ A: Soft, Non –tender, no organomegaly.

No e/o free fluid or any lump seen.

CNS:

Higher functions including speech were normal.

Cranial Nerve examination revealed right sided Supranuclear facial nerve Paresis..

Fundus examination showed no e/o papilledema. There was evidence of left sided hemiparesis.

Deep tendon reflexes were exaggerated in both upper and lower limb on left side and they were normal on right side.

Superficial reflexes showed absent abdominal reflex on left side & left plantar was extensor.

Sensory System examination was normal.

Investigations

CBC: Hb: 7.8 gm%; TLC: 2700cells /mm^3; Differential count: P-57%; L-41% E-01%, M-01%;

HCT: 24, RBC: 3 million /mm^3; platelet count: 2.32 lacs /mm^3; MCV -80; MCHC -32.5; MCH -26; ESR – 54 mm.

Peripheral smear showed moderate hypochromia with moderate anisocytosis with few microcytes & occasional macrocytes, &

few smudge cells. X-Ray Chest was normal.

HIV tests – positive (ELIZA and TRIDOT method)

CD 4 Counts

108 /L

Toxoplasma IgG antibodies:

4.04 units (POSITIVE), IgM Negative

Urine routine

Chemical examination – Albumin- nil, Sugar-Absent ,Microscopic examination-RBC-Not seen, Pus cells – Occasional / hpf, Casts–Not seen, Epithelial cells–Occasional, Bacteria - +

Liver function tests

Total Bilirubin – 0.56mg/dl, Direct Bilirubin – 0.18 mg/dl, Indirect Bilirubin- 0.38mg/dl, Ser. O.T. – 26, Ser. P.T. - 13.7mg/dl, Ser Alk. Phosphatase – 155, Total Proteins – 8.03mg/dl, Ser. Albumin – 3. mg/dl, Ser. Globulin - 0.53 mg/dl, A/G RATIO – 0.77mg/dl

KFT

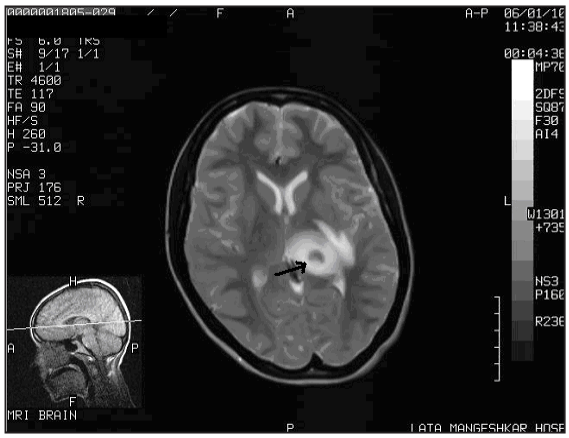
Blood Urea – 20.5 mg/dl, Ser. Creatinine – 1.00 mg/dl, Ser. Sodium -138 , Ser. Potassium – 3.6 mg/dl

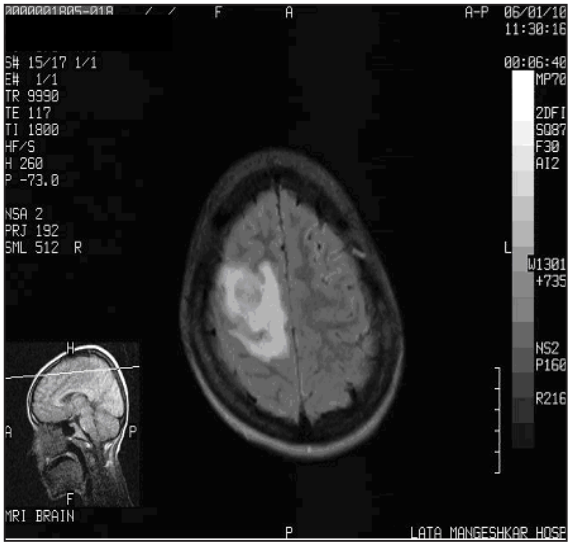
Mantoux tests was negative (after 48 hours)

MRI (Brain) with contrast :

On post contrast scan two well defined ring enhancing lesions seen with eccentric target sign (arrow in picture) in the following regions :

- Left sub thalamic and thalamic region measuring 9.3 x 8.6 mm, with perilesional edema involving centrum semiovale, internal capsule (posterior limb), left cerebral peduncle and causing effacement of left sided ambient cistern.
- Another lesion with similar morphology is seen on right side at the grey white matter interface of size 1.54 x 1.51cms in the region of precentral gyrus with perilesional edema involving postcentral gyrus, centrum semiovale, corona radiate, cingulated gyrus.
- The above features are strongly in favour of the diagnosis of CNS Toxoplasmosis with ring enhancing lesions, as patient is immunocompromised. Further work-up is necessary to rule out other possibilities of Tuberculosis or Neurocysticercosis granulomas.





In view of clinical features of headache, left hemiparesis & left focal seizures in a patient of AIDS with laboratory finding of CD 4 + T cell count of 108/µL, positive IgG anti bodies against T.gondii & classical ring enhancing lesions showing eccentric target sign on MRI brain, the diagnosis of CNS Toxoplasmosis

with mass lesions was kept. Patient was put on anti retroviral treatment, valproic acid & combination of sulfadiazine + pyrimethamine from the ART Centre. She was also given mannitol to control cerebral edema. Patient's seizures are at present well controlled, headache disappeared and her weakness has improved.

Discussion

The most common cause of secondary opportunistic infection of CNS in patients of AIDS is Toxoplasmosis. Its incidence is decreasing because of widespread use of HAART. It is ten times more common in patient with positive IgG antibodies to Toxoplasma antigen. The diagnosis is usually suspected on the basis of clinical findings, laboratory features & classical MRI findings. Patient with HIV infection should be screened for IgG antibodies to T.gondii during the time of their initial workup. Those who are negative should be counseled for minimizing the risk of exposure to primary infection. It is usually a late complication of HIV infection & occurs in patients with

CD4 + T cell count < 200 / µL.

In addition to Toxoplasmosis, differential diagnosis of single or multiple ring enhancing mass lesions like CNS lymphoma, tubercular, fungal granulomas & bacterial abscesses should be considered(2). The histopathological diagnosis by brain biopsy is usually reserved for patients who have failed to respond to four to six weeks of empirical therapy. If patient is seronegative for T.gondii antigen then the likelihood of mass lesions due to Toxoplasmosis is < 10%. In that setting one may choose to be more aggressive & perform the brain biopsy.

The standard treatment is combination of sulfadiazine (1-2 gms PO qd for 6 weeks) & pyrimethamine (100mg PO bd on day one followed by 25-100mg PO qd for 6 weeks) with leucoverin is given for four to six weeks. Alternatively combination of clindamycin (1200-4800 mg /day PO/Iv/IM divided qd) or atovaquone or azithromycin & rifabutin with Pyrimethamine should be considered. Relapses are common hence in patient with history of prior Toxoplasmosis of CNS, maintenance therapy with sulfadiazine, pyrimethamine combination is given as long as their CD 4 + count is < 200/ µL. Secondary prophylaxis or maintenance treatment for Toxoplasmosis may be discontinued in setting of effective ARV therapy & CD 4 + T count above 200/ µL. for 6 months.(5) In patient with CD 4 count < 100 & positive IgG antibodies primary prophylaxis for this infection should be given with regimen of single double strength tablet of TMP/ SMX which also provides primary protection against P.jiroveci.(6)

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